

SEQUENCE LISTING.

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<110> Thorner, Jeremy
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Casamayor, Antonio

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g
<213> *Saccharomyces cerevisiae*
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20 25 30

g
Gln Gln Asn Asn Gln Ala Thr Ala Gly Glu His Asp Ala Ser Ile Thr
g
35 40 45

g
Arg Ser Ser Leu Asp Arg Lys Gly Thr Ile Asn Pro Ser Asn Ser Ser
g
50 55 60

g
Val Val Pro Val Arg Val Ser Tyr Asp Ala Ser Ser Ser Thr Ser Thr
g
65 70 75 80

g
g

Val Arg Asp Ser Asn Gly Gly Asn Ser Glu Asn Thr Asn Ser Ser Gln
 □
 85 90 95
 □
 □
 Asn Leu Asp Glu Thr Ala Asn Ile Gly Ser Thr Gly Thr Pro Asn Asp
 □
 100 105 110
 □
 □
 Ala Thr Ser Ser Ser Gly Met Met Thr Ile Lys Val Tyr Asn Gly Asp
 □
 115 120 125
 □
 □
 Asp Phe Ile Leu Pro Phe Pro Ile Thr Ser Ser Glu Gln Ile Leu Asn
 □
 130 135 140
 □
 □
 Lys Leu Leu Ala Ser Gly Val Pro Pro Pro His Lys Glu Ile Ser Lys
 □
 145 150 155 160
 □
 □
 Glu Val Asp Ala Leu Ile Ala Gln Leu Ser Arg Val Gln Ile Lys Asn
 □
 165 170 175
 □
 □
 Gln Gly Pro Ala Asp Glu Asp Leu Ile Ser Ser Glu Ser Ala Ala Lys
 □
 180 185 190
 □
 □
 Phe Ile Pro Ser Thr Ile Met Leu Pro Gly Ser Ser Thr Leu Asn Pro
 □
 195 200 205
 □
 □
 Leu Leu Tyr Phe Thr Ile Glu Phe Asp Asn Thr Val Ala Thr Ile Glu
 □
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 □
 □
 Ala Glu Tyr Gly Thr Ile Ala Lys Pro Gly Phe Asn Lys Ile Ser Thr
 □
 225 230 235 240
 □
 □

Phe Asp Val Thr Arg Lys Leu Pro Tyr Leu Lys Ile Asp Val Phe Ala

□

245

250

255

□

□

Arg Ile Pro Ser Ile Leu Leu Pro Ser Lys Thr Trp Gln Gln Glu Met

□

260

265

270

□

□

Gly Leu Gln Asp Glu Lys Leu Gln Thr Ile Phe Asp Lys Ile Asn Ser

□

275

280

285

□

□

Asn Gln Asp Ile His Leu Asp Ser Phe His Leu Pro Ile Asn Leu Ser

□

290

295

300

□

□

Phe Asp Ser Ala Ala Ser Ile Arg Leu Tyr Asn His His Trp Ile Thr

□

305

310

315

320

□

□

Leu Asp Asn Gly Leu Gly Lys Ile Asn Ile Ser Ile Asp Tyr Lys Pro

□

325

330

335

□

□

Ser Arg Asn Lys Pro Leu Ser Ile Asp Asp Phe Asp Leu Leu Lys Val

□

340

345

350

□

□

Ile Gly Lys Gly Ser Phe Gly Lys Val Met Gln Val Arg Lys Lys Asp

□

355

360

365

□

□

Thr Gln Lys Val Tyr Ala Leu Lys Ala Ile Arg Lys Ser Tyr Ile Val

□

370

375

380

□

□

Ser Lys Ser Glu Val Thr His Thr Leu Ala Glu Arg Thr Val Leu Ala

□

385

390

395

400

□

□

Arg Val Asp Cys Pro Phe Ile Val Pro Leu Lys Phe Ser Phe Gln Ser
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☐
☐
 Pro Glu Lys Leu Tyr Phe Val Leu Ala Phe Ile Asn Gly Gly Glu Leu
☐ 420 425 430
☐
☐
 Phe Tyr His Leu Gln Lys Glu Gly Arg Phe Asp Leu Ser Arg Ala Arg
☐ 435 440 445
☐
☐
 Phe Tyr Thr Ala Glu Leu Leu Cys Ala Leu Asp Asn Leu His Lys Leu
☐ 450 455 460
☐
☐
 Asp Val Val Tyr Arg Asp Leu Lys Pro Glu Asn Ile Leu Leu Asp Tyr
☐ 465 470 475 480
☐
☐
 Gln Gly His Ile Ala Leu Cys Asp Phe Gly Leu Cys Lys Leu Asn Met
☐ 485 490 495
☐
☐
 Lys Asp Asp Asp Lys Thr Asp Thr Phe Cys Gly Thr Pro Glu Tyr Leu
☐ 500 505 510
☐
☐
 Ala Pro Glu Leu Leu Leu Gly Leu Gly Tyr Thr Lys Ala Val Asp Trp
☐ 515 520 525
☐
☐
 Trp Thr Leu Gly Val Leu Leu Tyr Glu Met Leu Thr Gly Leu Pro Pro
☐ 530 535 540
☐
☐
 Tyr Tyr Asp Glu Asp Val Pro Lys Met Tyr Lys Lys Ile Leu Gln Glu
☐ 545 550 555 560
☐
☐

Pro Leu Val Phe Pro Asp Gly Phe Asp Arg Asp Ala Lys Asp Leu Leu

□

565

570

575

□

□

Ile Gly Leu Leu Ser Arg Asp Pro Thr Arg Arg Leu Gly Tyr Asn Gly

□

580

585

590

□

□

Ala Asp Glu Ile Arg Asn His Pro Phe Phe Ser Gln Leu Ser Trp Lys

□

595

600

605

□

□

Arg Leu Leu Met Lys Gly Tyr Ile Pro Pro Tyr Lys Pro Ala Val Ser

□

610

615

620

□

□

Asn Ser Met Asp Thr Ser Asn Phe Asp Glu Glu Phe Thr Arg Glu Lys

□

625

630

635

640

□

□

Pro Ile Asp Ser Val Val Asp Glu Tyr Leu Ser Glu Ser Val Gln Lys

□

645

650

655

□

□

Gln Phe Gly Gly Trp Thr Tyr Val Gly Asn Glu Gln Leu Gly Ser Ser

□

660

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670

□

□

Met Val Gln Gly Arg Ser Ile Arg

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675

680

□

□

□

<210> 46

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<211> 431

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<212> PRT

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<213> Rattus norvegicus

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□

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Cys Lys His Pro Glu Val Gln Ser Tyr Leu Lys Ile Ser Gln Pro Gln
50 55 60
Glu Pro Glu Leu Met Asn Ala Asn Pro Ser Pro Pro Pro Ser Pro Ser
65 70 75 80
Gln Gln Ile Asn Leu Gly Pro Ser Ser Asn Pro His Ala Lys Pro Ser
85 90 95
Asp Phe His Phe Leu Lys Val Ile Gly Lys Gly Ser Phe Gly Lys Val
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Leu Leu Ala Arg His Lys Ala Glu Glu Ala Phe Tyr Ala Val Lys Val
115 120 125
Leu Gln Lys Lys Ala Ile Leu Lys Lys Lys Glu Glu Lys His Ile Met
130 135 140
Ser Glu Arg Asn Val Leu Leu Lys Asn Val Lys His Pro Phe Leu Val
145 150 155 160

☐ Gly Leu His Phe Ser Phe Gln Thr Ala Asp Lys Leu Tyr Phe Val Leu
☐ 165 170 175
☐
☐ Asp Tyr Ile Asn Gly Gly Glu Leu Phe Tyr His Leu Gln Arg Glu Arg
☐ 180 185 190
☐
☐ Cys Phe Leu Glu Pro Arg Ala Arg Phe Tyr Ala Ala Glu Ile Ala Ser
☐ 195 200 205
☐
☐ Ala Leu Gly Tyr Leu His Ser Leu Asn Ile Val Tyr Arg Asp Leu Lys
☐ 210 215 220
☐
☐ Pro Glu Asn Ile Leu Leu Asp Ser Gln Gly His Ile Val Leu Thr Asp
☐ 225 230 235 240
☐
☐ Phe Gly Leu Cys Lys Glu Asn Ile Glu His Asn Gly Thr Thr Ser Thr
☐ 245 250 255
☐
☐ Phe Cys Gly Thr Pro Glu Tyr Leu Ala Pro Glu Val Leu His Lys Gln
☐ 260 265 270
☐
☐ Pro Tyr Asp Arg Thr Val Asp Trp Trp Cys Leu Gly Ala Val Leu Tyr
☐ 275 280 285
☐
☐ Glu Met Leu Tyr Gly Leu Pro Pro Phe Tyr Ser Arg Asn Thr Ala Glu
☐ 290 295 300
☐
☐ Met Tyr Asp Asn Ile Leu Asn Lys Pro Leu Gln Leu Lys Pro Asn Ile
☐ 305 310 315 320
☐

	165	170	175
□			
□			
□	Leu Gln Lys Leu Asn Gly Thr Lys Gly Ile Phe Lys Leu Phe Phe Thr		
□			
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□			
□			
□	Phe Gln Asp Glu Ala Ser Leu Tyr Phe Leu Leu Glu Tyr Ala Pro His		
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	195	200	205
□			
□			
□	Gly Asp Phe Leu Gly Leu Ile Lys Lys Tyr Gly Ser Leu Asn Glu Thr		
□			
	210	215	220
□			
□			
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□			
	225	230	235
□			
□			
□	His Asn Ile Gly Ile Ile His Arg Asp Ile Lys Pro Glu Asn Ile Leu		
□			
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□			
□			
□	Leu Asp Lys Asn Met Lys Val Lys Leu Thr Asp Phe Gly Thr Ala Lys		
□			
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□			
□			
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□			
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□			
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□			
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□			
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□			
□			
□	Ile Lys Ala His Leu Phe Phe His Glu Val Asn Phe Glu Asp Gly Ser		
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□			
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□			
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□			
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□			
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□			
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□			
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	450	455	460
□			
□			
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650

655

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Ala Val Leu Met Lys Leu Trp Lys Leu Ile His Asn Gly Met Thr Ala

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660

665

670

□

□

Lys Pro Lys Val Val Ser Pro Lys Ser Asp His Lys Met Phe Asp Lys

□

675

680

685

□

□

Phe Ile Leu Gln Lys Arg Gln Asn Thr Lys Lys Lys Asn Gln Ala Pro

□

690

695

700

□

□

Pro Val Pro Gln Ser Asn Arg Leu Ile Asn Gly Leu Pro Asp Arg Cys

□

705

710

715

720

□

□

Ile Leu Lys Thr Pro Glu Glu Gly Ala Leu His Thr Lys Arg Pro Thr

□

725

730

735

□

□

Ser Leu Gln Thr Arg Ser Ser Ser Asn Tyr Ser Lys Leu Leu Ala Arg

□

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□

755

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765

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<212> PRT

□

<213> Schizosaccharomyces pombe

□

□

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 Glu Asn Asp Thr Gln Ser Glu Ser Asp Leu Ser Phe Asp His Gly Ser
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☐
☐
 Ser Glu Lys Leu Asn Arg Ala Ser Leu Pro Lys Thr Gln Asn Ser Ala
☐ 35 40 45
☐
☐
 Ile Pro Gln Ser Asn Ala Leu Asn Thr Thr Pro Asn Glu Ser Thr Ser
☐ 50 55 60
☐
☐
 Gln Ile Asp Ser Ser Pro Lys Ile Pro Ser Ala Val Pro His Ile Ser
☐ 65 70 75 80
☐
☐
 Thr Pro Asn Pro Ser Ser Gly Ala Ser Thr Pro Asn Ile Lys Arg Val
☐ 85 90 95
☐
☐
 Ser Asp Phe Lys Phe Gly Glu Ile Leu Gly Glu Gly Ser Tyr Ser Thr
☐ 100 105 110
☐
☐
 Val Leu Thr Ala Thr Glu Asn Ser Thr Lys Arg Glu Tyr Ala Ile Lys
☐ 115 120 125
☐
☐
 Val Leu Asp Lys Arg His Ile Ile Lys Glu Lys Lys Glu Lys Tyr Val
☐ 130 135 140
☐
☐
 Asn Ile Glu Lys Glu Ala Leu Cys Ile Leu Ser Lys His Pro Gly Phe
☐ 145 150 155 160
☐
☐

Ile	Lys	Leu	Phe	Tyr	Thr	Phe	Gln	Asp	Ala	His	Asn	Leu	Tyr	Phe	Val
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245										250					255
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275										280					285
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320										325					330

Phe Gln Ser Ile Leu His Leu Ser Tyr Glu Ile Pro Pro Asp Ile Ser
□
325 330 335
□
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Asp Val Ala Ser Asp Leu Ile Lys Lys Leu Leu Val Leu Asp Pro Lys
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340 345 350
□
□
Asp Arg Leu Thr Val Asp Glu Ile His Gln His Pro Phe Phe Asn Gly
□
355 360 365
□
□
Ile Lys Phe Asp Asn Thr Leu Trp Glu Leu Pro Pro Pro Arg Leu Lys
□
370 375 380
□
□
Pro Phe Gly His Thr Ser Val Leu Ser Leu Ser Val Pro Asn Ala Ser
□
385 390 395 400
□
□
Asn Lys His Glu Asn Gly Asp Leu Thr Ser Pro Leu Gly Val Pro Ser
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□
□
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Asn Arg Gly Thr Leu Leu Pro Cys Gln Ser Asn Leu Glu Glu Glu Asn
□
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□
□
Lys Glu Trp Ser Ser Ile Leu Gln Asp Asp Glu Lys Ile Ser Lys Ile
□
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□
□
Gly Thr Leu Asn Val Tyr Ser Met Ser Gly Ile Asn Gly Asn Asp Ala
□
465 470 475 480
□
□

Phe Arg Phe Phe Ser Ser Leu Phe Arg Lys Arg Lys Pro Arg Thr Phe
 □ 485 490 495
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 Ile Leu Thr Asn Phe Gly Arg Tyr Leu Cys Val Ala Ser Asp Gly Glu
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 Gly Arg Lys Thr Val Lys Glu Glu Ile Pro Ile Lys Ser Val Gly Met
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 Arg Cys Arg Met Val Lys Asn Asn Glu His Gly Trp Val Val Glu Thr
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 Pro Thr Lys Ser Trp Ser Phe Glu Asp Pro Asn Gly Pro Ala Ser Ala
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 Trp Val Glu Leu Leu Asp Lys Ala Ser Ser Ile Ser Leu Pro Phe Gly
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 Asn His Ser Val Thr Ser Phe Ser Arg Ser Ile Ala Arg Ser Ala Val
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 <213> Schizosaccharomyces pombe
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<400> 49

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☐

☐ Ala Asp Pro Asp Tyr Phe Glu Ala Arg Gly Glu Arg Asn Pro Val Lys

☐ 20 25 30

☐

☐ Pro Gln Ser Ser Asn Val Val Pro Gly Thr Ser His Ile Gly Ser Ile

☐ 35 40 45

☐

☐ Lys Ser Pro Ala Asp Tyr Val Phe Gly Asp Ile Ile Gly Asp Gly Ser

☐ 50 55 60

☐

☐ Phe Ser Lys Val Arg Arg Ala Thr Asp Lys Lys Ser Trp Lys Glu Tyr

☐ 65 70 75 80

☐

☐ Ala Ile Lys Val Leu Asp Lys Lys Tyr Ile Val Lys Glu Asn Lys Val

☐ 85 90 95

☐

☐ Lys Tyr Val Asn Ile Glu Arg Asp Ser Met Met Arg Leu Asn Gly Phe

☐ 100 105 110

☐

☐ Pro Gly Ile Ser Arg Leu Phe His Thr Phe Gln Asp Asp Leu Lys Leu

☐ 115 120 125

☐

☐ Tyr Tyr Val Leu Glu Leu Ala Pro Asn Gly Glu Leu Leu Gln Tyr Ile

☐ 130 135 140

☐

☐ Lys Lys Tyr Arg Phe Leu Asp Glu Asn Cys Val Arg Phe Tyr Ala Ala

☐ 145 150 155 160

☐

☐ Glu Ile Leu Ser Ser Ile Glu Tyr Met His Ser Cys Gly Ile Ile His
☐ 165 170 175
☐
☐ Arg Asp Leu Lys Pro Glu Asn Ile Leu Phe Asp Gly Asn Met His Val
☐ 180 185 190
☐
☐ Lys Ile Thr Asp Phe Gly Thr Ala Lys Ile Leu Pro Pro Lys Tyr Val
☐ 195 200 205
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☐ Asn Ser Pro Asp Tyr Thr Thr Phe Pro Ser Ser Phe Val Gly Thr Ala
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☐ Glu Tyr Val Ala Pro Glu Leu Leu Ser Arg Gln Val Val Ser Lys Ser
☐ 225 230 235 240
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☐ Ser Asp Leu Trp Ala Phe Ala Cys Val Val Tyr Gln Met Ile Val Gly
☐ 245 250 255
☐
☐ Ser Pro Pro Phe His Gly Ser Asn Pro Asn Asn Ile Phe Lys Lys Ile
☐ 260 265 270
☐
☐ Met Ser Leu Glu Tyr Glu Leu Pro Lys Leu Leu Pro Pro Asp Ile Val
☐ 275 280 285
☐
☐ Pro Leu Phe Ser His Leu Phe Arg Ile Gln Pro Ser Asp Arg Ser Thr
☐ 290 295 300
☐
☐ Thr Gln Gln Ile Lys Gln Phe Pro Phe Phe, Ala Thr Ile Thr Trp Asp
☐ 305 310 315 320
☐

☐ Asn Leu Trp Thr Gln Asp Pro Pro Pro Met Gln Ser Phe Arg Pro Asn

☐ 325 330 335

☐

☐ Tyr Asn Ile Ala Ile Pro Asn Ala Pro Ala Tyr Tyr Arg Ser Asn Val

☐ 340 345 350

☐

☐ Thr Ala Ala Ala Ala Ala Asn Ala Ala Ala Ala Phe Ala Ser Ala Ser

☐ 355 360 365

☐

☐ Ile Val Lys His Gln Glu Thr Ala Arg Arg Gln Glu Leu Pro Thr Val

☐ 370 375 380

☐

☐ Asn Arg Phe Thr Ala Pro Thr Ala His Tyr Gly Tyr Ala Ser Leu Arg

☐ 385 390 395 400

☐

☐ Ser His Gln Met Pro Val Asp Arg Leu Tyr Tyr Lys Leu Val Pro Ser

☐ 405 410 415

☐

☐ Ser Glu Ser Ile

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☐ <211> 491

☐ <212> PRT

☐ <213> Unknown

☐

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☐
☐
☐
 Asn Ser Ser Asn Gly Ala Asn Val Ser Arg Ser Lys Ser Phe Ser Phe
☐
 20 25 30
☐
☐
☐
 Lys Ala Pro Gln Glu Asn Phe Thr Ser His Asp Phe Glu Phe Gly Lys
☐
 35 40 45
☐
☐
☐
 Ile Tyr Gly Val Gly Ser Tyr Ser Lys Val Val Arg Ala Lys Lys Lys
☐
 50 55 60
☐
☐
☐
 Glu Thr Gly Thr Val Tyr Ala Leu Lys Ile Met Asp Lys Lys Phe Ile
☐
 65 70 75 80
☐
☐
☐
 Thr Lys Glu Asn Lys Thr Ala Tyr Val Lys Leu Glu Arg Ile Val Leu
☐
 85 90 95
☐
☐
☐
 Asp Gln Leu Glu His Pro Gly Ile Ile Lys Leu Tyr Phe Thr Phe Gln
☐
 100 105 110
☐
☐
☐
 Asp Thr Ser Ser Leu Tyr Met Ala Leu Glu Ser Cys Glu Gly Gly Glu
☐
 115 120 125
☐
☐
☐
 Leu Phe Asp Gln Ile Thr Arg Lys Gly Arg Leu Ser Glu Asp Glu Ala
☐
 130 135 140
☐
☐
☐
 Arg Phe Tyr Thr Ala Glu Val Val Asp Ala Leu Glu Tyr Ile His Ser
☐

145 150 155 160
☐
☐
 Met Gly Leu Ile His Arg Asp Ile Lys Pro Glu Asn Leu Leu Leu Thr
☐
 165 170 175
☐
☐
 Ser Asp Gly His Ile Lys Ile Ala Asp Phe Gly Ser Val Lys Pro Met
☐
 180 185 190
☐
☐
 Gln Asp Ser Gln Ile Thr Val Leu Pro Asn Ala Ala Ser Asp Asp Lys
☐
 195 200 205
☐
☐
 Ala Cys Thr Phe Val Gly Thr Ala Ala Tyr Val Pro Pro Glu Val Leu
☐
 210 215 220
☐
☐
 Asn Ser Ser Pro Ala Thr Phe Gly Asn Asp Leu Trp Ala Leu Gly Cys
☐
 225 230 235 240
☐
☐
 Thr Leu Tyr Gln Met Leu Ser Gly Thr Ser Pro Phe Lys Asp Ala Ser
☐
 245 250 255
☐
☐
 Glu Trp Leu Ile Phe Gln Arg Ile Ile Ala Arg Asp Ile Lys Phe Pro
☐
 260 265 270
☐
☐
 Asn His Phe Ser Glu Ala Ala Arg Asp Leu Ile Asp Arg Leu Leu Asp
☐
 275 280 285
☐
☐
 Thr Glu Pro Ser Arg Arg Pro Gly Ala Gly Ser Glu Gly Tyr Val Ala
☐
 290 295 300
☐
☐
 Leu Lys Arg His Pro Phe Phe Asn Gly Val Asp Trp Lys Asp Leu Arg
☐

305	310	315	320
□			
□			
Ser Gln Thr Pro Pro Lys Leu Ala Pro Asp Pro Ala Ser Gln Thr Ala			
□			
	325	330	335
□			
□			
Ser Pro Glu Arg Asp Asp Thr His Gly Ser Pro Trp Asn Leu Thr His			
□			
	340	345	350
□			
□			
Ile Gly Asp Ser Leu Ala Thr Gln Asn Glu Gly His Ser Ala Pro Pro			
□			
	355	360	365
□			
□			
Thr Ser Ser Glu Ser Ser Gly Ser Ile Thr Arg Leu Ala Ser Ile Asp			
□			
	370	375	380
□			
□			
Ser Phe Asp Ser Arg Trp Gln Gln Phe Leu Glu Pro Gly Glu Ser Val			
□			
385	390	395	400
□			
□			
Leu Met Ile Ser Ala Val Lys Lys Leu Gln Lys Ile Thr Ser Lys Lys			
□			
	405	410	415
□			
□			
Val Gln Leu Ile Leu Thr Asn Lys Pro Lys Leu Ile Tyr Val Asp Pro			
□			
	420	425	430
□			
□			
Ser Lys Leu Val Val Lys Gly Asn Ile Ile Trp Ser Asp Asn Ser Asn			
□			
	435	440	445
□			
□			
Asp Leu Asn Val Val Val Thr Ser Pro Ser His Phe Lys Ile Cys Thr			
□			
	450	455	460
□			
□			
Pro Lys Lys Val Leu Ser Phe Glu Asp Ala Lys Gln Arg Ala Ser Val			
□			

465 470 475 480
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☐
 Trp Lys Lys Ala Ile Glu Thr Leu Gln Asn Arg
☐
 485 490
☐
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☐
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 <212> PRT
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 <213> *Saccharomyces cerevisiae*
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☐
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 Met His Ser Trp Arg Ile Ser Lys Phe Lys Leu Gly Arg Ser Lys Glu
☐
 1 5 10 15
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☐
 Asp Asp Gly Ser Ser Glu Asp Glu Asn Glu Lys Ser Trp Gly Asn Gly
☐
 20 25 30
☐
☐
 Leu Phe His Phe His His Gly Glu Lys His His Asp Gly Ser Pro Lys
☐
 35 40 45
☐
☐
 Asn His Asn His Glu His Glu His His Ile Arg Lys Ile Asn Thr Asn
☐
 50 55 60
☐
☐
 Glu Thr Leu Pro Ser Ser Leu Ser Ser Pro Lys Leu Arg Asn Asp Ala
☐
 65 70 75 80
☐
☐
 Ser Phe Lys Asn Pro Ser Gly Ile Gly Asn Asp Asn Ser Lys Ala Ser
☐
 85 90 95
☐
☐

Glu	Arg	Lys	Ala	Ser	Gln	Ser	Ser	Thr	Glu	Thr	Gln	Gly	Pro	Ser	Ser
			100					105					110		
Glu	Ser	Gly	Leu	Met	Thr	Val	Lys	Val	Tyr	Ser	Gly	Lys	Asp	Phe	Thr
		115					120					125			
Leu	Pro	Phe	Pro	Ile	Thr	Ser	Asn	Ser	Thr	Ile	Leu	Gln	Lys	Leu	Leu
	130						135					140			
Ser	Ser	Gly	Ile	Leu	Thr	Ser	Ser	Ser	Asn	Asp	Ala	Ser	Glu	Val	Ala
	145				150					155					160
Ala	Ile	Met	Arg	Gln	Leu	Pro	Arg	Tyr	Lys	Arg	Val	Asp	Gln	Asp	Ser
			165						170					175	
Ala	Gly	Glu	Gly	Leu	Ile	Asp	Arg	Ala	Phe	Ala	Thr	Lys	Phe	Ile	Pro
			180						185				190		
Ser	Ser	Ile	Leu	Leu	Pro	Gly	Ser	Thr	Asn	Ser	Ser	Pro	Leu	Leu	Tyr
		195					200					205			
Phe	Thr	Ile	Glu	Phe	Asp	Asn	Ser	Ile	Thr	Thr	Ile	Ser	Pro	Asp	Met
	210						215				220				
Gly	Thr	Met	Glu	Gln	Pro	Val	Phe	Asn	Lys	Ile	Ser	Thr	Phe	Asp	Val
	225				230					235					240
Thr	Arg	Lys	Leu	Arg	Phe	Leu	Lys	Ile	Asp	Val	Phe	Ala	Arg	Ile	Pro
			245						250					255	

Ser Leu Leu Leu Pro Ser Lys Asn Trp Gln Gln Glu Ile Gly Glu Gln
 □
 260 265 270
 □
 □
 Asp Glu Val Leu Lys Glu Ile Leu Lys Lys Ile Asn Thr Asn Gln Asp
 □
 275 280 285
 □
 □
 Ile His Leu Asp Ser Phe His Leu Pro Leu Asn Leu Lys Ile Asp Ser
 □
 290 295 300
 □
 □
 Ala Ala Gln Ile Arg Leu Tyr Asn His His Trp Ile Ser Leu Glu Arg
 □
 305 310 315 320
 □
 □
 Gly Tyr Gly Lys Leu Asn Ile Thr Val Asp Tyr Lys Pro Ser Lys Asn
 □
 325 330 335
 □
 □
 Lys Pro Leu Ser Ile Asp Asp Phe Asp Leu Leu Lys Val Ile Gly Lys
 □
 340 345 350
 □
 □
 Gly Ser Phe Gly Lys Val Met Gln Val Arg Lys Lys Asp Thr Gln Lys
 □
 355 360 365
 □
 □
 Ile Tyr Ala Leu Lys Ala Leu Arg Lys Ala Tyr Ile Val Ser Lys Cys
 □
 370 375 380
 □
 □
 Glu Val Thr His Thr Leu Ala Glu Arg Thr Val Leu Ala Arg Val Asp
 □
 385 390 395 400
 □
 □
 Cys Pro Phe Ile Val Pro Leu Lys Phe Ser Phe Gln Ser Pro Glu Lys
 □
 405 410 415
 □
 □

☐ Leu Tyr Leu Val Leu Ala Phe Ile Asn Gly Gly Glu Leu Phe Tyr His
☐ 420 425 430
☐
☐ Leu Gln His Glu Gly Arg Phe Ser Leu Ala Arg Ser Arg Phe Tyr Ile
☐ 435 440 445
☐
☐ Ala Glu Leu Leu Cys Ala Leu Asp Ser Leu His Lys Leu Asp Val Ile
☐ 450 455 460
☐
☐ Tyr Arg Asp Leu Lys Pro Glu Asn Ile Leu Leu Asp Tyr Gln Gly His
☐ 465 470 475 480
☐
☐ Ile Ala Leu Cys Asp Phe Gly Leu Cys Lys Leu Asn Met Lys Asp Asn
☐ 485 490 495
☐
☐ Asp Lys Thr Asp Thr Phe Cys Gly Thr Pro Glu Tyr Leu Ala Pro Glu
☐ 500 505 510
☐
☐ Ile Leu Leu Gly Gln Gly Tyr Thr Lys Thr Val Asp Trp Trp Thr Leu
☐ 515 520 525
☐
☐ Gly Ile Leu Leu Tyr Glu Met Met Thr Gly Leu Pro Pro Tyr Tyr Asp
☐ 530 535 540
☐
☐ Glu Asn Val Pro Val Met Tyr Lys Lys Ile Leu Gln Gln Pro Leu Leu
☐ 545 550 555 560
☐
☐ Phe Pro Asp Gly Phe Asp Pro Ala Ala Lys Asp Leu Leu Ile Gly Leu
☐ 565 570 575
☐

Leu Ser Arg Asp Pro Ser Arg Arg Leu Gly Val Asn Gly Thr Asp Glu

□

580

585

590

□

□

Ile Arg Asn His Pro Phe Phe Lys Asp Ile Ser Trp Lys Lys Leu Leu

□

595

600

605

□

□

Leu Lys Gly Tyr Ile Pro Pro Tyr Lys Pro Ile Val Lys Ser Glu Ile

□

610

615

620

□

□

Asp Thr Ala Asn Phe Asp Gln Glu Phe Thr Lys Glu Lys Pro Ile Asp

□

625

630

635

640

□

□

Ser Val Val Asp Glu Tyr Leu Ser Ala Ser Ile Gln Lys Gln Phe Gly

□

645

650

655

□

□

Gly Trp Thr Tyr Ile Gly Asp Glu Gln Leu Gly Asp Ser Pro Ser Gln

□

660

665

670

□

□

Gly Arg Ser Ile Ser

□

675

□

□

□

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□

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□

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Gly Ala Thr Met Lys Thr Phe Cys Gly Thr Pro Glu Tyr Leu Ala Pro

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1

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10

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☐

☐

Glu

☐

☐

☐

☐

<210> 53

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☐

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☐

☐

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Phe Pro Gln Phe Ser Tyr Ser Ala Ser

☐

1

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☐

☐

☐

<210> 54

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<211> 17

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<212> PRT

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<213> Artificial Sequence

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<220>

☐

<223> Description of Artificial Sequence:peptide

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☐

<400> 54

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Asn Ser Thr Thr Ser Thr Phe Cys Gly Thr Pro Glu Tyr Leu Ala Pro

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☐

☐

Glu

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☐

☐

☐

<210> 55

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<211> 9

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<213> Artificial Sequence

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<223> Description of Artificial Sequence:peptide

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☐

<400> 55

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Phe Leu Gly Phe Ser Tyr Ala Pro Pro

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1 5

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☐

☐

<210> 56

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<211> 17

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<212> PRT

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<213> Artificial Sequence

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☐

<400> 56

☐

Gly Thr Val Thr His Thr Phe Cys Gly Thr Ile Glu Tyr Met Ala Pro

☐

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1           5           10           15
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□
Glu
□
□
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□
□
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Phe Leu Gly Phe Thr Tyr Val Ala Pro
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Asp Ala Lys Thr Asn Thr Phe Cys Gly Thr,Pro Asp Tyr Ile Ala Pro
□
1           5           10           15
□

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Glu
☐

☐

☐

☐
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Phe Arg Asn Phe Ser Phe Met Asn Pro

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Asp Asp Lys Thr Asp Thr Phe Cys Gly Thr Pro Glu Tyr Leu Ala Pro

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☐

Glu

☐

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Asn Asp Lys Thr Asp Thr Phe Cys Gly Thr Pro Glu Tyr Leu Ala Pro

☐

1

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10

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☐

☐

Glu

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□

□

<210> 63

□

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<213> Artificial Sequence

□

□

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□

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□

<400> 63

□

Phe Gly Gly Trp Thr Tyr Ile Gly

□

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□

□

□

<210> 64

□

<211> 17

□

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□

<213> Artificial Sequence

□

□

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□

□

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□

Gly Asn Arg Thr Ser Thr Phe Cys Gly Thr Pro Glu Phe Met Ala Pro

□

1

5

10

15

□

□

Glu

□

□